

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (Canceled).

Claim 2 (Previously Presented): The method according to claim 21, wherein applying hydrogen peroxide to said packaging sheet material comprises applying liquid hydrogen peroxide thereto at an effective concentration of up to 50% by weight.

Claim 3 (Previously Presented): The method according to claim 21, wherein applying hydrogen peroxide to said packaging sheet material comprises applying liquid hydrogen peroxide at a concentration of from 20% by weight to 40% by weight.

Claim 4 (Currently Amended): A method for sterilizing a packaging sheet material, the method comprising in the following order:

applying a liquid solution of hydrogen peroxide to the surface of a packaging sheet material;

applying a stream of air to said packaging sheet material for removing a substantial amount of hydrogen peroxide from the surface of the packaging sheet material while retaining a residual or trace quantity of hydrogen peroxide absorbed by or located adjacent to any microorganisms present on said packaging sheet material; and thereafter

irradiating the surface of said packaging sheet material retaining a residual or trace quantity of hydrogen peroxide absorbed by or located adjacent to any microorganisms present on said packaging sheet material with UV light having a wavelength between about 200nm and 320nm;

wherein applying hydrogen peroxide to said packaging sheet material comprises immersing said packaging sheet material in a hydrogen peroxide bath at a temperature between 15 degrees Centigrade and 80 degrees Centigrade, for a time interval of from 0.5 seconds to 2 seconds.

Claim 5 (Currently Amended): A method for sterilizing a packaging sheet material, the method comprising in the following order:

applying a liquid solution of hydrogen peroxide to the surface of a packaging sheet material while any microorganisms on the surface of the packaging material absorb hydrogen peroxide;

applying a stream of air to said packaging sheet material for removing a substantial amount of hydrogen peroxide from the surface of the packaging sheet material while retaining a residual or trace quantity of hydrogen peroxide absorbed by or located adjacent to any microorganisms present on said packaging sheet material; and

irradiating the surface of said packaging sheet material retaining a residual or trace quantity of hydrogen peroxide absorbed by or located adjacent to any microorganisms present on said packaging sheet material with UV light having a wavelength between about 200nm and 320nm;

wherein said stream of air is heated to a temperature from 80 degrees Centigrade to 150 degrees Centigrade; and wherein said packaging sheet material is hydrophobic.

Claim 6 (Previously Presented): The method according to claim 21, wherein irradiating the surface of said packaging sheet material with UV light comprises irradiating said packaging sheet material with polychromatic UV light.

Claims 7-14 (Canceled).

Claim 15 (Currently Amended): An apparatus for sterilizing a packaging material comprising:

(a) a means for applying a hydrogen peroxide solution to a surface of a packaging material, connected in sequence to

(b) a means for directing a stream of air on the surface of said packaging material to remove substantially all but a residual or trace quantity of hydrogen peroxide, connected in sequence to

(c) a means for irradiating said packaging material with UV light having a UV wavelength between 200nm and 320nm, and

(d) a means for advancing the packaging material continuously and sequentially from the applying means through the means for directing a stream of air and then to the irradiating means;

wherein said means for applying hydrogen peroxide includes a bath of hydrogen peroxide.

Claim 16 (Canceled).

Claim 17 (Previously Presented): The apparatus according to claim 15 , wherein said means for irradiating the packaging sheet material with light includes at least one lamp producing UV light having a wavelength of about 222 nm .

Claim 18 (Previously Presented): The apparatus according to claim 15 , wherein the UV light source includes at least one excimer lamp.

Claims 19-20 (Canceled).

Claim 21 (Currently Amended): A method for sterilizing a packaging sheet material, the method comprising, in the following order:

applying a liquid solution of hydrogen peroxide to the surface of a packaging material while any microorganisms on the surface of the packaging material absorb hydrogen peroxide;

applying a stream of air to the packaging sheet material for removing the hydrogen peroxide from the surface of the packaging sheet material while retaining a residual or trace quantity of hydrogen peroxide absorbed by or located adjacent to any microorganisms present on said packaging sheet material; and

irradiating the surface of the packaging material retaining a residual or trace quantity of hydrogen peroxide absorbed by or located adjacent to any microorganisms present on said packaging sheet material with UV light having a wavelength between about 200nm and 320nm.

Claim 22 (Previously Presented): A method for rendering any microorganisms present on the surface of packaging sheet material non-viable, the method comprising, in the following order:

advancing continuously the sheet material through a bath of liquid hydrogen peroxide having a concentration of at least 10% by weight;

blowing air against a surface of the sheet material, the air being heated to a temperature of between 80 degrees Centigrade and 150 degrees Centigrade, for removing hydrogen peroxide from the surface of the sheet material while retaining a residual or trace quantity of hydrogen peroxide absorbed by or located adjacent to any microorganisms present on the sheet material; and

directing UV light onto the surface of the sheet material containing the hydrogen peroxide absorbed by or located adjacent to the microorganisms, whereby the synergy between hydrogen peroxide and the UV light kills the microorganisms.

Claim 23 (Currently Amended): A method for sterilizing packaging material comprising, in the following order:

applying a hydrogen peroxide solution on the surface of a packaging material while any microorganisms on the surface absorb hydrogen peroxide;

removing a substantial amount of hydrogen peroxide from the surface of said packaging material while retaining a residual or trace quantity of hydrogen peroxide absorbed by or located adjacent to any microorganisms present on said packaging material;

irradiating said packaging material retaining a residual or trace quantity of hydrogen peroxide absorbed by or located adjacent to any microorganisms present on said packaging material with UV light having a wavelength of between about 200 nm and 320 nm; and

wherein said packaging material is advanced continuously and at the same rate through an apparatus sequentially applying a hydrogen peroxide solution, removing a substantial amount of the hydrogen peroxide, and thereafter irradiating said packaging material .

Claim 24 (Previously Presented): The method according to claim 23, wherein applying a hydrogen peroxide solution comprises passing the packaging material through a bath of hydrogen peroxide having a concentration of 20% to 40% by weight.

Claim 25 (Previously Presented). The method according to claim 23, wherein removing a substantial amount of hydrogen peroxide comprises applying a stream of air to the surface of the packaging material, the air stream having a temperature of between 80°C and 150°C.

Claim 26 (Currently Amended): An apparatus for sterilizing a packaging material comprising:

(a) a means for applying a hydrogen peroxide solution to a surface of a packaging material comprising a bath of hydrogen peroxide, connected in sequence to

(b) a means for directing a stream of air on the surface of said packaging material to substantially remove all but a residual or trace quantity of the hydrogen peroxide that has been absorbed by or located adjacent to any microorganisms present on said packaging material, connected in sequence to

(c) a means for irradiating said packaging material with UV light having a UV wavelength between 200 nm and 320 nm, and

(d) means for advancing the packaging material continuously and sequentially from the means for applying a hydrogen peroxide solution, through the means for directing a stream of air, and thereafter through the means for irradiating said packaging material .

Claim 27 (Previously Presented): The apparatus according to claim 26, wherein said means for irradiating said packaging material comprises an eximer lamp.

Claim 28 (Currently Amended): A method for sterilizing a packaging sheet material comprising, in the following order :

(1) applying a liquid solution of hydrogen peroxide to the surface of a packaging sheet material while any microorganisms on the surface of the packaging material absorb hydrogen peroxide; then

(2) applying a stream of air to said packaging sheet material for removing a substantial amount of hydrogen peroxide from the surface of the packaging sheet material while retaining a residual or trace quantity of hydrogen peroxide absorbed by or located adjacent to any microorganisms present on said packaging sheet material; and thereafter

(3) irradiating the surface of said packaging sheet material retaining a residual or trace quantity of hydrogen peroxide absorbed by or located adjacent to any microorganisms present on said packaging sheet material with UV light having a wavelength between about 200nm and 320nm;

wherein applying hydrogen peroxide to said packaging sheet material comprises immersing said packaging sheet material in a hydrogen peroxide bath at a temperature between 15 degrees Centigrade and 80 degrees Centigrade, for a time interval of from 0.5 seconds to 2 seconds;

wherein removing a substantial amount of hydrogen peroxide from said packaging sheet material comprises blowing a stream of air heated to a temperature from 80 degrees Centigrade to 150 degrees Centigrade onto said packaging sheet material; and
wherein said packaging sheet material is hydrophobic.

Claim 29. (Previously Presented): An apparatus for sterilizing packaging material comprising a packaging material transport mechanism arranged to transport the packaging material in sequence through a bath of hydrogen peroxide solution, past an air knife capable of substantially removing the hydrogen peroxide solution from the packaging material and thereafter past a UV light source.

Claim 30. (Previously Presented): The apparatus of claim 29 wherein the UV light source comprises at least one lamp that produces UV light having a wavelength between about 200 nm and 320 nm.

Claim 31. (Previously Presented): The apparatus of claim 30 wherein the UV light source comprises at least one lamp that produces UV light having a wavelength of about 222 nm.

Claim 32 (Previously Presented): The apparatus according to claim 31, wherein the UV light source includes at least one excimer lamp.